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REMARKS/ARGUMENTS

Status of Claims

Claims 1-30, 34-36 remain in the application.

Claims 32 and 33 have been cancelled.

Claims 31 and 37 remain cancelled.

35 USC 112 Rejections

In response to the Examiner's rejection of claims 32 and 33, these claims have been cancelled.

35 U.S.C. 102 Rejections

The Examiner has rejected claims 1-3, 5-17, 20, 24-26, 28 and 34-36 as not complying with paragraph 35 U.S.C. § 102(e). The rejection is based on the claim being anticipated by Levandovsky et al. (U.S. patent no. 7,095,956" hereinafter "Levandovsky").

Controlling case law has frequently addressed rejections under 35 U.S.C. § 102 as follows. "For a prior art reference to anticipate in terms of 35 U.S.C. Section 102, every element of the claimed invention must be identically shown in a single reference." *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 677, 7 U.S.P.Q.2d 1315, 1317 (Fed. Cir. 1988; emphasis added). The disclosed elements must be arranged as in the claim under review. See *Lindemann Machinefabrik v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1458, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). If any claim, element, or step is absent from the reference that is being relied upon, there is no anticipation. *Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d 1565, 230 U.S.P.Q. 81 (Fed. Cir. 1986; emphasis added).

Claim 1 includes the limitation "identifying at least one base variable upon which the identified optical effects depend". Support for this limitation, as well as an explanation of how this limitation relates to the overall invention, is provided at page 13, lines 6-18 as follows:

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Experience has shown that the distortive and noisy optical effects that impact how well a wavelength can be received after transmission along a path may be predicted and prioritized based on a number of factors. For example, such factors include but are not limited to the type of fiber, span lengths, the number of wavelengths and the power level input into each span.

In the present embodiment of the invention the four factors given by example in the previous paragraph are identified as base variables. Preferably, the identification of base variables and optical effects will be completed *a priori*, subject to update as understanding of the optical communications environment increases.

and at page 15, line 7-page 16, line 13:

In accordance with the present invention, each segment is associated with a set of distortion Dx and noise Nx metrics that describe the segment's impact on a wavelength travelling along the segment in a particular direction. Each of these metrics seeks to approximate the distortive and noisy effect, respectively, that will be experienced by an optical signal along a segment.

For example, each metric will be a function of the four base variables identified above (e.g. the fiber type A, the span length profile B, the number of wavelengths C and the input power D). With reference to Figure 1, segment S1 will be associated with metrics DS1 and NS1.

DS1 comprises a matrix of data or functions, each corresponding to one of the distortive effects, such as dispersion (DISP~), SPM~, XPM~ and FWM~. The "~" indicates that each of these metrics is merely an approximation of the actual non-linear relation. Thus, the distortion metric Dx may generally be expressed as follows:

$$D_x = [\text{DISP}_{x\sim}(A,B,C,D), \\ \text{SPM}_{x\sim}(A,B,C,D), \\ \text{XPM}_{x\sim}(A,B,C,D), \\ \text{FWM}_{x\sim}(A,B,C,D,)] \quad (2)$$

Similarly, NS1 comprises a matrix of data or functions, each corresponding to one of the noise effects, such as ASE~, SBS~, SRS~ and MPI~. Thus, the noise metric Nx may generally be expressed as follows:

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$$\begin{aligned} N_x = [& ASEX \sim (A,B,C,D), \\ & SBS_x \sim (A,B,C,D), \\ & SRS_x \sim (A,B,C,D), \\ & MPI_x \sim (A,B,C,D)] \end{aligned} \quad (3)$$

It will be appreciated by those having ordinary skill in this art that the distortion effects and the noise effects are not limited to the types enumerated above. Other distortive and/or noise effects may be identified or considered significant and may be added to the corresponding distortion or noise metric, in addition to or in place of the other effects.

However, the limitation of "identifying at least one base variable upon which the identified optical effects depend" is not taught by Levandovsky, and the Examiner has not referenced this limitation anywhere in the present Office Action.

Indeed, as was acknowledged by the former Examiner Azemar on page 3 of the Office Action mailed February 23, 2007, "Levandovsky does not teach identifying at least one base variable upon which the identified optical effects depend." (emphasis added)

Therefore, Levandovsky does not include all the elements recited by claim 1, and as such, Levandovsky does not anticipate claim 1. The Applicant respectfully requests that the Examiner withdraw the rejection of claim 1 under 35 U.S.C. 102(e), and the rejection of claims 2-3, 5-17, and 20 which depend thereon.

Claim 24 contains the limitation "a quantifier to determine the value of at least one identified base variable upon which optical effects that impact the viability of the signal path are dependent". For the same reasons as mentioned in respect of claim 1, the Applicant respectfully requests that the Examiner withdraw the rejection of claim 24 under 35 U.S.C. 102(e), and the rejection of claim 25 which depends thereon.

Claim 26 includes the limitation of "a quantifier to determine the value of at least one identified base variable upon which optical effects that impact the viability of the signal path are dependent for the at least one downstream segment" For the same reasons as mentioned in respect of claim 1, the Applicant respectfully requests that the Examiner withdraw the rejection

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of claim 26 under 35 U.S.C. 102(e).

Claim 28 includes the limitation of "a quantifier to determine the value of at least one identified base variable upon which optical effects that impact the viability of the signal path are dependent on the at least one downstream segment" For the same reasons as mentioned in respect of claim 1, the Applicant respectfully requests that the Examiner withdraw the rejection of claim 28 under 35 U.S.C. 102(e).

Claim 34 includes the limitation of "determine the value of at least one identified base variable upon which optical effects that impact the viability of the signal path are dependent" For the same reasons as mentioned in respect of claim 1, the Applicant respectfully requests that the Examiner withdraw the rejection of claim 34 under 35 U.S.C. 102(e).

Claim 35 includes the limitation of "determine the value of at least one base variable upon which optical effects that impact the viability of the signal path are dependent for the at least one downstream segment" For the same reasons as mentioned in respect of claim 1, the Applicant respectfully requests that the Examiner withdraw the rejection of claim 35 under 35 U.S.C. 102(e).

Claim 36 includes the limitation of "determine the value of at least one identified base variable upon which optical effects that impact the viability of the signal path are dependent on the at least one downstream segment" For the same reasons as mentioned in respect of claim 1, the Applicant respectfully requests that the Examiner withdraw the rejection of claim 36 under 35 U.S.C. 102(e).

35 U.S.C 103 Claim Rejections

The Examiner has rejected claim 4 under 35 U.S.C. 103(a) as being unpatentable over Levandovsky in view of Solheim et al. (U.S. Patent 7,190,902) hereinafter "Solheim".

The law on obviousness under 35 U.S.C. 103 was recently addressed in *KSR Int'l v. Teleflex, Inc.*, No. 04-1350, slip op. at 14 (U.S., Apr. 30, 2007). Following this, examination guidelines were released on October 10, 2007 in regards to determining obviousness under 35

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U.S.C. 103. According to these guidelines, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.* 383 U.S. 1,148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries. The factual inquiries enunciated by the Court are as follows:

- (1) Determining the scope and content of the prior art;
- (2) Ascertaining the differences between the claimed invention and the prior art; and
- (3) Resolving the level of ordinary skill in the pertinent art.

The *Graham* factors, including secondary considerations when present, are the controlling inquiries in any obviousness analysis. The *KSR* case states that there must be "an apparent reason to combine the known elements in the fashion claimed by the patent at issue." According to *KSR*, for the Patent Office to properly combine references in support of an obviousness rejection, the Patent Office must identify a reason why a person of ordinary skill in the art would have sought to combine the respective teachings of the applied references.

- (1) The Examiner did not properly determine the scope and content of the prior art

Claim 4 depends on claim 1.

As noted above in connection the argument submitted in respect of claim 1, Levandovsky does not include the limitation of "identifying at least one basic variable upon which the identified optical effects depend." Solheim does not cure the deficiency in Levandovsky.

It is therefore submitted that the Examiner has not properly determined the scope and content of the prior art. It is therefore not necessary to have regard to the other two *Graham* factors.

For all of the foregoing reasons, Applicant submits that the Examiner has failed to properly determine the scope and content of the prior art and as a result, has not met the first of the *Graham* factors mentioned by the U.S. Supreme Court in *KSR*.

In view of the foregoing, Applicant respectfully requests that the rejection of claim 4

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under 35 USC 103(a) claims be withdrawn.

The Examiner has rejected claims 18 under 35 U.S.C. 103(a) as being unpatentable over Levandovsky in view of Bickham et al. (U.S. Patent no. 6,943,935).

Claim 18 depends on claim 1.

The Examiner has rejected claim 19 under 35 U.S.C. 103(a) as being unpatentable over Levandovsky in view of Denkin et al. (U.S. patent no. 6,980,740).

Claim 19 depends on claim 1.

As noted above in connection the argument submitted in respect of claim 1, Levandovsky does not include the limitation of "identifying at least one base variable upon which the identified optical effects depend." Denkin et al. does not cure the deficiency in Levandovsky.

The Examiner has rejected claims 21-23 under 35 U.S.C. 103(a) as being unpatentable over Levandovsky.

Claims 21-23 depend on claim 1.

As noted above in connection the argument submitted in respect of claim 1, Levandovsky does not include the limitation of "identifying at least one base variable upon which the identified optical effects depend."

The Examiner has rejected claims 27, 29-30 and 32-33 under 35 U.S.C. 103(a) as being unpatentable over Levandovsky in view of Beine et al. (U.S. Patent no. 6,701,087).

Claims 32-33 have been cancelled.

Claim 27 depends on claim 26.

As noted above in connection the argument submitted in respect of claim 26, Levandovsky does not include the limitation of "a quantifier to determine the value of at least one identified base variable upon which optical effects that impact the viability of the signal path are dependent for the at least one downstream segment". Beine et al. does not cure the deficiency

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in Levandovsky.

Claims 29 and 30 depend on claim 28.

As noted above in connection the argument submitted in respect of claim 28, Levandovsky does not include the limitation of "a quantifier to determine the value of at least one identified base variable upon which optical effects that impact the viability of the signal path are dependent for the at least one downstream segment". Beine et al. does not cure the deficiency in Levandovsky.

In summary, it is therefore submitted that the Examiner has not properly determined the scope and content of the prior art. It is therefore not necessary to have regard to the other two *Graham* factors.

For all of the foregoing reasons, Applicant submits that the Examiner has failed to properly determine the scope and content of the prior art and as a result, has not met the first of the *Graham* factors mentioned by the U.S. Supreme Court in *KSR*.

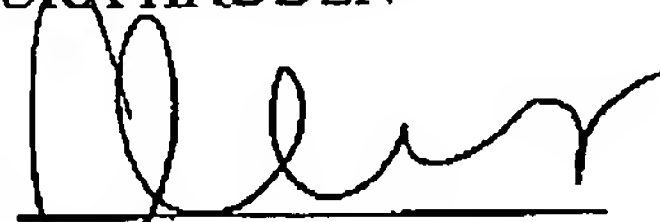
In view of the foregoing, Applicant respectfully requests that the rejection of claims 4, 18, 19, 21-23, 27, 29-30, and 32-33 under 35 USC 103(a) claims be withdrawn.

In view of the foregoing, early favourable consideration of this application is earnestly solicited.

Respectfully submitted,

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